

STATE OF MINNESOTA  
CONTROL COUNTY OF RAMSEY

MINNESOTA POLLUTION  
AGENCY

In the Matter of the Proposed Adoption  
AND of 6 MCAR SS 4.6088-4.6100  
Setting Forth Standards for Waste  
Disposal Facility Operator and  
Inspector Certification

STATEMENT OF NEED  
REASONABLENESS

I. INTRODUCTION

Minnesota Statutes section 116.41, subd. 2 (Supp. 1981) requires that the Minnesota Pollution Control Agency (Agency) develop standards of competence for persons operating and inspecting various classes of waste disposal facilities. Further, the Agency is directed to: require operators and inspectors of waste disposal facilities to obtain a certificate of competency from the Agency; conduct examinations to test the competency of individuals; and require certificate renewal.

To assist with development of these rules, an advisory committee was established. Committee membership nominations were requested from professional organizations, local and regional units of government, solid waste industry organizations and a notice was published in the State Register. (See Exhibit 1.) The final selection of committee members was done by Agency staff. The criteria used in selecting committee members included balancing geographical distribution (metro/outstate), occupation (inspector/operator), unit of government (county, regional, local, state), size of operation (large/small) type of operation (demolition/sanitary/industrial waste) and the desire of individuals nominated to serve on the committee. Exhibit 2 is a list of the names and affiliations of the committee members.

Agency staff prepared draft rules in March, June, July, August and September, November and December of 1981. Rule changes were based on recommendations from the advisory committee, other Agency personnel and from comments obtained at six informational meetings held in Rochester, Marshall, Virginia, Brainerd, Detroit Lakes and Roseville in July and August 1981. Notices of these meetings were sent to all known permitted waste disposal facilities, all county zoning officers, and all known potential inspectors of waste disposal facilities. The end result of these meetings and discussions has produced the proposed rules for certification of waste disposal facility operators and inspectors. Additional meetings were held with representatives of the Minnesota Wastewater Operators Association in December 1981 to resolve potential conflicts and problems that may affect members of their association.

Once these rules are adopted, individuals currently employed that require certifications have up to 24 months to become certified. The process of certification will involve the following steps: determine the appropriate facility type; complete application form; receive necessary training to meet minimum contact hours; take examinations; pay certification fee if all criteria are met; and once certified, continue to receive contact hours of training as necessary to renew certificate.

The Agency Director will review applications to determine eligibility of applicants; provide training and review other non-agency training; prepare and grade examinations; issue certificates; maintain accurate records; and review complaints.

## II. STATEMENT OF NEED

As population increases and technology and laws changed, we have developed into a throw-away society. This has resulted in increasing quantities of waste being generated and the quantity is expected to increase. There is an increased public awareness of the problems of waste management as is evidenced by the difficulty encountered when attempting to site new facilities. Several attempts have been made to recycle or recover waste streams to reduce the reliance on land disposal facilities. Some have been successful and others, due to cost overruns and the inability to procure contracts for waste or energy, have been financial disasters.

In a 1979 report, Barr Engineering estimates that between 40,000 to 55,000 tons of solid waste are generated per week in Minnesota. (Barr Engineering, Minnesota Resource Recovery Plan, prepared for the Agency, September, 1979.) These figures do not include demolition waste, industrial waste, sewage sludge or hazardous waste. Nearly all of this waste is deposited on or in the land. There are 227 permitted solid waste disposal facilities in Minnesota. These types of facilities include demolition waste landfill, mixed municipal waste landfills, industrial waste landfills, spray irrigation systems, and, in the future, hazardous waste landfills. Until waste generation decreases drastically or other methodologies are employed to reduce the dependence on land as the disposal site for waste, there will be a potential for land and subsequent ground water contamination from waste disposal activities.

Historically, landfills were thought to be the solution to open burning dumps. However, improperly designed or operated facilities can create

more problems than they alleviate. The major problem that develops in landfills is the generation and migration of leachate. Leachate is a liquid that develops when moisture comes in contact with solid waste. Moisture acts as a carrier of any materials that are contained in the waste. These materials can migrate through the landfill and enter the groundwater.

It is estimated that there are between 200,000 and 300,000 groundwater wells in Minnesota. Two-thirds of the people in this state rely on groundwater as their source of drinking water. Groundwater does not normally move rapidly, therefore its self purification capabilities are limited. Once groundwater is contaminated it may take years to become useable without providing expensive treatment. Contaminated groundwater will adversely effect the utilization of that water for agricultural, industrial and domestic purposes.

Employment of the basic principles of landfill operation can reduce the quantities of leachate generated, thus reduce the adverse impact from land disposal activities on the groundwaters of the state.

Improper operation of waste disposal facilities can result in a wide variety of other problems. Landfill gas, primarily methane, is generated during decomposition of waste. Methane has migrated outside landfill boundaries and resulted in explosion, loss of life, property damage and crop destruction. Nuisances and potential public health concerns exist from rodents, insects, dust, noise, litter, disposal of unauthorized wastes and fires. There is a potential for property depreciation adjacent to disposal facilities.



Public agencies charged with monitoring waste disposal facilities spend countless hours answering and investigating complaints about facility operation and maintenance. Currently there is no statewide program in existence to relate these principles of operation to facility operators. Through implementation of a training and certification program, operators of facilities will be informed of methods to reduce the problems and eventual costs of operation. These rules provide the mechanism that will require facility operators to be trained in the principles of waste disposal.

Training is only one phase of assuring competency of individuals. There must also be a mechanism for displaying this competency. This mechanism is certification. Certification is a process where an individual demonstrates the skill, knowledge and ability to properly employ the principles of facility operation. This can be achieved through a combination of education, experience, training and passing an examination.

Through implementation of a training and certification program the awareness level of operators of facilities will be elevated. This can only result in better facility operations which will reduce the potential for adverse impact on groundwaters of the state and reduce other operational problems and complaints.

Inspectors of waste disposal facilities are usually employed by either county or state government. Those counties that have adopted solid waste disposal ordinances and have employed individuals to administer and enforce the ordinances have inspectors on staff. State inspectors are employed by the Agency and work out of the regional and central offices.

The qualifications and experience of existing state and local inspectors spans a broad range. During a recent survey of inspectors that attended the public information meetings, 69% indicated that they have less than four years experience. Historically, individuals that are employed to inspect facilities have little or no experience. This results in inaccurate inspections due to lack of knowledge of facility operation. Often, too much emphasis is placed on aesthetics or blatantly obvious violations with the subtle and potentially dangerous conditions being overlooked. Another problem encountered is that an inspector may recognize a violation of rules or ordinances and not have a recommendation to solve the problem.

There is also a broad range of educational background of inspectors. (The same survey revealed that 11% have less than 12 years of school, 42% have between 12 and 16 years of school and 47% have over 16 years.) This is due, in part, to the wide variety of occupations that make up the inspector force within this state. These occupations include engineers, geologists, public health sanitarians, zoning administrators, environmental technicians and pollution control specialists. In some cases, the solid waste officer is a county auditor, assessor, park director or planner. This results in a wide background of experiences and individuals that may or may not have specialized knowledge or training in the area of solid waste disposal.

There is overlapping jurisdiction in some counties of the state for solid waste disposal inspection and enforcement. Whenever individuals from more than one layer of government are responsible for inspecting a facility, there is a potential problem of inconsistency between inspectors

and inspections. This results in confusion as the facility operator is sometimes given conflicting orders and direction to resolve problems.

A training and certification program will assist new inspectors in becoming knowledgeable, improve the competency of experienced inspectors, and reduce inconsistencies between inspectors by having the knowledge of all inspectors raised to at least minimum levels.

As has been mentioned before, a survey was conducted during the regional workshops that occurred in July and August. One purpose of the survey was to obtain information from operators and inspectors regarding their experiences, responsibility, education and desired training times and location. The survey was also done to determine the current knowledge level of operators and inspectors in relation to the large number of tasks that need to be performed and their perception of the relative importance of each task to their duties as operators or inspectors.

The following is a list of general topic areas that were included in the survey and the percent response given to each area by operators and inspectors. The sub topic areas under each general area have been averaged to obtain the values shown. The column labeled "knowledge" reflects the percentage of response that indicated the person felt they have less than adequate knowledge in a given area. The column labeled "importance" reflects the percentage of those responses that indicated the person felt having knowledge in those areas was either moderately important or very important. The entire survey is included as an appendix to this document. (Exhibit 3.)

<u>Topic Areas</u>	<u>Operators</u>		<u>Inspectors</u>	
	<u>Knowledge</u>	<u>Importance</u>	<u>Knowledge</u>	<u>Importance</u>
A. Plans and Specification Reading and Interpretation	11%	98%	24%	97%
B. Site Design and Construction	28%	93%	34%	92%
C. Site Operation: Recognition and Solution of Problems	18%	95%	36%	95%
D. Waste Decomposition Processes and Problems	45%	97%	49%	98%
E. Equipment Use and Maintenance	13%	96%	63%	85%
F. Safety	9%	99%	35%	96%
G. Monitoring for Environmental Problems	59%	99%	54%	98%
H. Site Management	6%	93%	35%	92%
I. Rules and Procedures	21%	95%	30%	97%
J. Enforcement and Inspections	34%	84%	31%	99%

There was a maximum of 63 inspectors and 39 operators responding to the survey. Nearly all of the survey sheets were not completely marked, therefore, the total responses for any given topic area do not match with another area. There are approximately 150 individuals in this state that would qualify as inspectors, therefore; there was approximately 42% participation in the survey.



As can be seen from the survey results, a large percentage of inspectors indicate they have less than adequate knowledge in the areas included on the survey and feel that additional knowledge in these areas is essential to performance of their duties.

There are 227 permitted disposal facilities for solid waste in the state. Of that, there were 39 responses to the survey or approximately 17% response. The knowledge column show that the operators responding to the survey feel that they have more knowlege in the survey areas than inspectors. This may be true for those responding to the survey, however, there is a significant number (83%) of operators that did not participate in the survey. Even without those responses, there are a significant number of individuals that have training needs in several of the areas included in the survey.

### III. STATEMENT OF REASONABLENESS

The Agency is currently involved in administration of a training and certification program for wastewater treatment facility operators. This program is mandated by Minnesota Statutes section 115.73 (1971) and is being regulated by 6 MCAR SS 5.001-5.003. A voluntary certification program was developed in the early 1950's and the mandatory certification program started in 1971. Many of the provisions in the proposed rules for certification of waste disposal facility operators and inspectors are based on provisions in the wastewater certification rules and experience gained by agency staff throughout the years of administration of the program.

The following discussion addresses the reasonableness of the specific rule provisions of 6 MCAR SS 4.6088-4.6100.

6 MCAR S 4.6089

The definitions that are used in these rules are self explanatory. The words "Agency" and "Agency Director" are included so that the reader can make a distinction between the two. These words are used several times throughout the rules and the reader must be able to understand who is responsible for the authority or duties specified.

"Certification" has been defined as a process that must be followed so that an individual can demonstrate his or her competency. It is the opinion of the advisory committee that no one action or ability of an individual should qualify that person for certification. For this reason, certification is a multifaceted process that must include experience, education, training and examination.

"Contact Hour" is an accepted term that is used in existing certification and registration programs. Its application in this rule is to provide for specific training requirements prior to becoming certified or recertified.

"Disposal Facility" is defined in Minn. Stat. S 115A.03, subd. 9 (1980). The advisory committee felt that this definition should be included in these rules so that persons reading the rules will know the scope of the certification program. The committee felt that it was the

intent of the Act to require operators and inspectors of facilities that have an agency permit or are operating under agency authority to become certified and not facilities permitted (passively allowed to exist) by the Agency.

"Inspector" must be carefully defined to preclude requiring certification of individuals who are not performing the duties of an inspector. Too broad a definition can result in county board, agency board and agency or program administrators having to become certified. The listing of job titles that may be included as inspectors is necessary to identify the types of individuals that conduct inspections at waste disposal facilities. This list is not all encompassing but is given only to show the general occupational categories that can be required to be certified if their job function includes routine facility inspection.

When defining the word "Operator" the same potential for an overbroad definition existed. Therefore, a listing of inclusive and exclusive job functions was provided. The intent of certification of operators is to have the individuals on site at a disposal facility competent in the operation of the facility. The people that would be on site would include site facility managers, supervisors and equipment operators. These are the individuals that either operate the equipment or directly supervise that operation therefore they should have the most knowledge about facility operation. Another reason that the job function is included in the definition is to preclude corporate individuals from being the only certified operator for a facility when that individual may never be present at the site.

"Waste" is defined in Minn. Stat. S 115A.03, subd. 34 (1980). The definition includes construction debris which is defined in Minn. Stat. S 115A.03, subd. 7 (1980). This term is included to provide the reader with a clear understanding of the scope of the certification program and the facility types that require certified operators and inspectors.

6 MCAR S 4.6090

The Waste Management Act requires that the Agency develop standards of competency for operators and inspectors of different classes of facilities. This rule establishes the different classes that are to be used for training and certification purposes.

There were many discussions that centered on the best method of classifying facilities. The main considerations that were common to all discussion included: the different skills and knowledge necessary to operate and inspect facilities that accept different waste types; waste types that must be handled differently to reduce the potential for adverse environmental impact; and the degree of hazard of a waste types.

Based on these considerations, the rule establishes four waste disposal facility types for which an individual can obtain a certificate to operate or inspect.

Type I is a hazardous waste disposal facility. Inspectors and operators of facilities that dispose of hazardous waste will have to become certified for Type I facilities. This includes landfills and land application systems.

Type II facilities include sanitary landfills, modified landfills and sewage sludge landfills. These facilities are included in one type because the operational and potential environmental problems and solutions are similar. These include groundwater monitoring and protection, waste handling, gas generation and migration, and nuisance recognition and control.

Type III facilities are selective categories of solid waste that are easier to operate, have less of a potential for adverse impact, and have similar operational requirements. Type III facilities include construction (demolition) waste landfills and non-hazardous industrial waste landfills.

Type IV facilities are non-hazardous waste land application facilities. This includes sewage sludge and industrial wastewaters that are surface applied or directly injected into the land.

6 MCAR S 4.6091

This rule establishes a certification committee and sets forth the duties of that committee. It is reasonable that operators and inspectors be equally represented on the committee to preclude one segment from dominating committee policy. Ideally, there should be at least one member on the committee from each type of facility. However, this is



not mandated in the rule in the event that no one from a particular facility type wishes to serve on the committee. Another reason that this is not mandated is that inspectors of Type III facilities will, in all probability, hold Type II certificates. Therefore, there will be very few inspectors that inspect only Type III facilities.

Initially the rule advisory committee felt that Agency staff should be excluded from voting membership as Agency staff already have access to policy makers. They felt that allowing Agency staff to be included on the committee would result in over representation of the Agency and negate any impact that the committee has on establishing policy. Further discussion resulted in limiting voting membership to one Agency staff person as there will be a large number of staff people that will have to be certified as inspectors.

Since establishment of a committee is not mandated in the Act, members must serve without compensation.

Committee duties are designed to: reduce the potential for Agency bias in training; reduce the potential for Agency bias when reviewing other training program; and act as a link between staff and operator and inspectors to minimize conflicts that may develop.

Establishment of a transitional committee is necessary to provide a mechanism to conduct the committee duties until the first group of individuals are certified. Since the individuals that assisted in development of these rules have the best knowledge on why the rules are written as they are, they will function as the advisory committee until 24 months after the rules are effective.

6 MCAR S 4.6092

This rule requires operators and inspectors to obtain a certificate of competency from the Agency for the appropriate type of facility. Throughout the public information meetings there was very little opposition to requiring operators to be certified. There was opposition to requiring all operators of a particular facility be certified. The rule, as proposed, takes this into consideration by establishing the minimum number of individuals that need to be certified at a site based on the number of operators employed. The advisory committee felt that large operations should have more than one operator certified. This will result in a greater potential for a certified person to be at the facility when it is open. This rule also requires that each facility have at least one certified operator. This will insure that there is one individual at each facility that is familiar with proper site operation.

There was no opposition to the requirement that all inspectors be certified. As with operators, inspectors must be certified to inspect the appropriate facility type. As discussed previously on pages 5 through 9 it is reasonable to require that all inspectors be certified.

By definition, solid waste includes semi-solids, liquids or contained gaseous materials resulting from commercial or industrial activities. 6 MCAR SS 5.001-5.003 are rules that establish certification for municipal wastewater operators. Industrial wastewater treatment facility operators are not required to be certified under 6 MCAR SS 5.001-5.003. However, many industrial facility operators do hold operator certificates on a voluntary basis. The waiver section is included to allow those facility

operators to choose which program they want to be certified under and also, not require duplicate certificates unless they also land apply solids or semi-solids.

6 MCAR S 4.6093

Type I

The qualifications for certification as Type I facility operator are the most stringent due to the complexity of operations and the potential degree of hazard resulting from improper facility operation. Operators of these facilities must have knowledge in science or engineering to properly employ the principles of disposal.

Fifteen contact hours is equivalent to two and one half days of training. These courses can be provided by non-Agency programs as expertise in hazardous waste disposal facilities operation are available from a variety of sources.

The experience requirement for all types of facility operators is necessary so that individuals have some practical knowledge about facility operation. This will result in more fruitful discussion from course participants as the trainees will be able to discuss areas of concern with a broadened knowledge base. The experience requirement is particularly important for Type I operator because of the potential adverse impact from hazardous waste facilities.

## Type II

A Type II facility operator deals with a wide variety of problems such as leachate and decomposition gas generation and migration. Recognition of these problems and the ability to determine the corrective action necessary to abate the problem is essential. The educational requirements are less than for a Type I facility because there is less need for scientific or technical knowledge when searching for solutions to problems. A high school degree or equivalent is necessary to comprehend these concepts. The contact hours of training are the same as Type I due to multitude of potential problems and solutions that need to be discussed.

## Type III

Type III facility operators will be handling a homogenous waste product. The multitude of operational problems experienced at a Type II facility are not present at a Type III facility; therefore less training is needed to cover the essential elements of operation. Since the potential for environmental harm is less, the training programs will be less technical in nature. There are no educational requirements because of the less technical nature of the programs.

## Type IV

Type IV facilities are land application systems for sewage sludge and industrial wastewaters. Currently, much of the sewage sludge generated by municipal wastewater treatment is land applied for soil enhancement.

In most communities, this is being done by the operators of the wastewater treatment plants.

The communities that do not land apply sludge either incinerate the sludge or contract with a private firm to land apply or landfill the material. If the sludge is land applied under contract, the individuals that hold the contract will have to become certified.

The training programs for land application of sewage sludge will be incorporated into existing training programs for wastewater treatment plant operators, and the educational requirement for a Type IV operator are the same as for a Class D wastewater treatment plant operator.

The skills and knowledges for operators of landfills versus land application facilities differ significantly. Therefore, landfills are not included as a Type IV facility.

Contact hours of training necessary to take a Type IV examination are less than for a Type II facility operator due to fewer potential operational problems at a Type IV site. Requirements for a Type IV facility are more than for a Type III facility due to a greater complexity of operation at a Type IV site. Training requirements are set at nine contact hours because there have been several land application training courses that need this amount of time to cover the necessary material.



6 MCAR S 4.6094

The educational and training requirements for facility inspectors are the same as for operators of the corresponding facility type. It is reasonable to require the same standards for both because the inspector's job is to check on the performance of the facility operator.

The experience requirement for inspectors has been quantified by requiring that ten inspections be conducted at a facility by the individual seeking certification. This will reduce the problem of unexperienced people inspecting facilities. In previous draft rules, the experience requirement specified that a person be employed for a period of time prior to examination. This was changed in the proposed rules to require a certain number of inspections because, under the previous drafts, a person could be employed as an inspector without ever doing an inspection.

A waiver of the experience requirement was included to allow for the initial certification to occur. Twenty-four months are provided to allow adequate time to develop the training courses, examinations and deliver an adequate number of training and exam sessions. Type I facility inspectors are exempt from the 10 inspection requirement until 24 months after a Type I facility is operational. This will provide the same time frame for Type I inspectors to become certified as is given to other types. Since there are no Type I facilities in the state, the process will be delayed until these facilities are operational thus precluding unnecessary cost of sending individuals out of state to obtain experience inspecting this type of facility.

6 MCAR S 4.6095.

This rule requires that the potential certified individual and the Agency Director meet deadlines in the certification process. A 15 day application lead time allows the Agency to review the application and determine the eligibility of the applicant to take the exam. It also requires the Agency Director to notify the applicant of his or her status so that individuals do not waste time and money to go to an exam session if they are not eligible to take the exam. A five-day notification will accomplish this.

6 MCAR S 4.6096.

This rule establishes the criteria for passing and reviewing an examination. The provisions included in this rule are based on current practices and provisions included in the Agency's certification program for wastewater treatment operators. Separate examinations are necessary to cover the differences between facility types. Closed book examinations will not be unfair as any math formulae needed to answer questions will be provided to all persons being tested.

Seventy percent has been used as a cut off for passing in nearly all training and educational systems. It is reasonable to expect that the individual achieve a 70% grade to become certified. This is the same score used for wastewater treatment operator certification.

Exams will not be returned to the applicant to preclude writing new exams for each course. This will result in each applicant taking the

same examination and not allow an unfair advantage to individuals that know someone that has a copy of an exam. Applicants may, however, come in person to the Agency offices to review the exam and discuss areas of weakness so that they can adequately prepare for future exams.

Re-examination can not occur until three months after the failure to pass an exam. This will preclude individuals from memorizing questions and answers and immediately writing another exam.

6 MCAR S 4.6097.

This rule establishes use, issuance, renewal and reinstatement criteria for certificates. Certificate use allows individuals to operate or inspect different types of facilities if they hold operator or inspector certificates for another type. This section was included because the knowlege and skills necessary to be certified for a Type III facility are similar, but less than, for a Type II facility. Individuals capable of operating or inspecting a Type II facility should be able to operate or inspect a Type III facility. Type I and IV facilities require totally different knowledge and skills to operate or inspect so there is no provision for use of these certificates without being certified for those facility types.

Certificates will be issued once all necessary conditions for certification have been met. Certificates are valid for three years. During that three year time period the certified individual must receive additional contact hours of training to maintain the certificate. This will insure

that they are kept aware of current operational practices, new technology, and receive reinforcement on the basic principles of operation and inspection.

As has been mentioned previously, municipal wastewater facility operators are required to be certified. This is the only occupational group that has been identified by the agency as having a mandatory certification program. Since these individuals must have a certificate to maintain their employment it would be inequitable to require duplicate certificates and fees. The Agency, and wastewater operators, believe and agree that training and certification for land application of sludge is essential. However, the wastewater operators feel that one certificate should suffice as proof of competence. Since there has been no method to display competency with land application of sludge the rules require that everyone needing sludge certification obtain an initial certificate. All subsequent or renewal certificates will then be incorporated into their existing certificate if the criteria for recertification are met. This will eliminate duplicate certification and fees while insuring competency of the individuals.

Contact hours needed for certificate renewal are based on the fact that each full day of training contains approximately six contact hours. This will require an average of one day of training per year as a minimum for recertification of operators and inspectors of Type I and II facilities. These facility types can present the greatest degree of hazard due to the nature of the waste being received and the complexity of facility operation therefore requiring more training for recertification is reasonable. All other facility types present a lesser degree of

hazard, therefore, fewer hours are needed for reissuance of the certificate. To require continuing education in a profession is reasonable if the individuals are expected to be kept aware of changing rules, technology and operational practices that will result in better performance of work tasks.

6 MCAR S 4.6098

This rule establishes fees for certification. The fees are usual and customary and are the same as those currently charged for certification of wastewater treatment plant operators. These fees are considerably less than those charged by some registration, licensing and certification programs. The fees will, based on current estimates, offset administrative costs incurred in maintaining records, mailing and copying of forms and exams.

6 MCAR S 4.6099

This rule provides a mechanism for revocation or suspension of certificates if warranted. Individuals that submit inaccurate data to obtain certification, if subsequently discovered, should be subject to sanctions. The same applies to individuals that falsify claims for recertification. Incompetence, negligence or inappropriate conduct will be more difficult to assess. While it is anticipated that charges of their nature will occur infrequently, there is a need to include provisions for these types of items if an individuals actions warrant investigation and potential sanction imposition. The potential for imposition of sanctions is needed to provide credibility to any certification program.



6 MCAR S 4.6100.

This rule requires all inspectors and operators that need certification to become certified within 24 months after the effective date of these rules. This will result in adequate lead time to develop and deliver the necessary training programs and examinations. It will also provide adequate lead time for individuals to properly plan and budget for training and certification time and expenses.

A section on timing of certification is included to give new employees that need to become certified a reasonable time period to obtain the proper certification.

In some parts of the state, mainly rural Minnesota, regional landfill authorities have been established. These authorities contract with a private firm to operate the publically owned disposal facility. If there were no provision in the rule that allowed an operator to work at a facility for some time period prior to obtaining certification, this would exclude many people from bidding on contracts, resulting in a monopoly by some bidders.

Inspectors must also be given a reasonable time period to become certified after obtaining employment. During this time period they can gain the experience inspecting facilities that is necessary to take the certification exam. If a situation arises where an inspection is necessary at a facility and no certified individual is available, this provision will allow a non-certified individual to conduct the inspection.

The operators and inspectors that are working without being certified must inform the Agency by submitting their application for certification and a statement of intent to complete the certification program within 10 months. This will result in the Agency knowing who those people are, as well as requiring a commitment from them to complete the certification process. Prior to permitting an individual to use this clause, the individual must meet the educational requirements necessary for certification. This will reduce the possibility of an individual with no education being hired to operate a hazardous waste disposal facility when there is very little chance that certification would occur.

IV. CONCLUSION

Based on the foregoing, the proposed rules 6 MCAR SS 4.6088-4.6100 are both needed and reasonable.

DATED: \_\_\_\_\_

3/1/82

  
Louis J. Breimhurst  
Executive Director

EXHIBIT I

Pollution Control Agency  
Division of Water Quality

Notice of Intent to Solicit Applicants To Serve on Advisory Committee  
To Assist in Developing Rules for Certification of Individuals  
Operating and Inspecting Various Classes of Solid Waste Disposal  
Facilities

Notice is hereby given that the Minnesota Pollution Control Agency (MPCA) is establishing an advisory committee to assist in developing standards of competence for persons operating and inspecting various classes of solid waste disposal facilities pursuant to Minnesota Statute Section 116.41, subdivision 2. The statute requires that all operators and inspectors of facilities obtain a certificate of competence, and that the Agency conduct training courses, examinations and recertification at reasonable time intervals.

All interested or affected persons or groups who desire to participate on this committee are requested to respond by March 31, 1981. Please send comments and statements of application to:

Clarence Manke or Art Dunn  
Operations/Training Unit  
Minnesota Pollution Control Agency  
1935 West County Road B-2  
Roseville, Minnesota 55113  
(612) 297-3717 or 297-3716

Exhibit II

Certification Rule Advisory Committee

<u>Name</u>	<u>Affiliation</u>
Roger Plumb/Harold DeVries	City of Rochester Landfill, Operator
Al Frechette	Scott County, Inspector
Wayne Golly	Pine County, Zoning Administrator
David Gurney	Dakota County, Inspector
Ken Hopke	Stearns County, Inspector
Robert Hutchinson	Anoka County, Inspector
Barb Kelly	Minnesota Waste Association
Ron Larson	Pine Bend Landfill, Operator
Mike Lein	Rice County, Inspector
Carl Michaud	Metro Council, Planner
Mike McGowan	Freeway Landfill, Operator
Joe Pahl	Louisville Landfill, Operator
James Peterson	Citizen
Elaine Ritter	Ritters Landfill, Operator
Truman Thronnd	Freeborn County, Solid Waste Officer
Larry Welt	Dakhue Landfill, Operator
Kurt Williamson	Crosby American Prop Demo Landfill, Operator
Lothar Wolter	Minnesota Association of Township Officials
Andy Zejack	Minnesota Wastewater Operators Association

NEEDS AND KNOWLEDGE ASSESSMENT  
 Waste Disposal Facility Operators and Inspectors

SUMMARY

TASK	KNOWLEDGE LEVEL					IMPORTANCE					COMMENTS	
	1	2	3	4	5	1	2	3	4	5		
<b>Plans &amp; Specifications</b>												
1. Read Plans	61	16	15	46	20	3	57	37	5	1	-	60
2. Interpret	62	13	18	45	21	3	53	38	9	-	-	60
3. Follow	58	16	12	50	16	7	2	28	11	7	2	61
4. Recognize limits of Plans	59	14	20	39	19	8	17	38	15	-	-	58
5. Determine slopes	62	18	15	42	21	5	57	43	18	2	-	60
6. Determine elevations	61	16	15	36	28	5	51	52	15	2	-	61
7. Equipment use	60	7	17	37	32	8	53	36	24	3	3	58
8. Math	60	20	28	45	5	2	49	31	48	2	-	58
9. Importance of following plans	57	26	30	32	7	5	53	39	4	-	5	57
<b>Site Design &amp; Construction</b>												
1. Potential volume	59	5	22	34	32	7	29	38	28	2	3	58
2. Clearing of land	61	3	13	44	31	8	16	16	46	14	9	57
3. Access	61	5	20	46	21	8	22	15	47	12	3	59
4. Building & Utilities	61	3	16	36	34	10	9	21	37	23	11	57
5. Fencing	61	3	26	48	20	3	12	22	49	14	3	59
6. Soils	60	10	20	47	18	5	56	37	2	2	3	59
7. Water	56	14	23	39	23	-	7	20	4	-	2	49
a. Surface	61	15	20	41	25	-	67	27	5	-	2	60
b. Ground	53	16	24	31	29	-	70	23	5	-	2	56
8. Land form Limitations	59	10	15	34	32	8	40	35	21	-	4	57
9. Trench Method	59	10	19	41	24	7	29	52	14	2	3	58
10. Area Method	58	10	16	41	26	7	28	52	13	2	5	60
11. Method of determining volumes received	59	10	17	29	37	5	22	30	42	3	3	60
12. Control of surface water	59	12	17	44	25	-	60	30	8	-	2	60
13. Control of Groundwater	60	8	18	25	42	7	65	30	2	2	2	60
14. Geology	60	8	13	23	43	7	51	36	12	-	2	59
15. Ideal site characteristics	60	10	18	35	33	3	46	33	16	2	2	57
<b>Site Operation</b>												
1. Traffic flow	59	2	8	42	46	2	12	19	58	7	5	59
2. Control Access	60	3	17	53	25	2	20	28	40	5	7	60
3. Handling of wastes												
a. Mixed municipal refuse	61	2	18	51	23	7	34	16	17	-	2	59

Numbers in far left and right columns reflect total response to each item.

Numbers in other columns are % response

- KNOWLEDGE:
1. No training needed
  2. More than adequate
  3. Adequate
  4. Less than adequate
  5. No knowledge
- IMPORTANCE:
1. Very important
  2. Important
  3. Moderately important
  4. Not important
  5. Not applicable



**NEEDS AND KNOWLEDGE ASSESSMENT  
Waste Disposal Facility Operators and Inspectors**

TASK		KNOWLEDGE LEVEL					IMPORTANCE					COMMENTS
		1	2	3	4	5	1	2	3	4	5	
b. bulky waste	60	2	7	48	35	8	20	25	47	7	-	59
c. Institutional waste	60	3	8	40	38	10	33	37	23	5	2	57
d. Dead animals	58	2	14	50	24	10	18	37	35	10	-	60
e. Hazardous wastes	58	7	14	19	52	9	71	25	3	-	-	59
f. Non compactable waste	59	-	10	51	32	7	27	30	37	7	-	60
g. Sludges	60	7	13	28	47	5	43	45	10	-	2	60
h. Liquids	59	2	17	32	41	8	51	37	10	-	2	59
i. Compactability	60	3	17	38	37	5	30	46	21	3	-	61
Cover												
a. Fully	62	16	21	48	13	2	16	39	15	-	-	61
b. Intermediate	59	12	24	46	15	3	37	50	12	2	-	60
c. Final	61	15	16	46	21	2	50	33	7	-	-	60
d. Maintenance	59	5	19	46	29	2	12	35	22	2	-	60
e. Drainage control	61	8	13	44	34	-	15	38	13	3	-	60
f. Erosion control	61	7	18	41	34	-	15	47	8	-	-	60
g. Soils	61	8	15	41	34	2	17	44	7	2	-	59
h. Compaction	61	10	11	52	25	2	38	47	13	2	-	60
i. Prevent waste of cover	59	8	3	46	36	7	28	43	22	7	-	58
k. Confinement	57	7	7	51	35	-	27	44	24	3	2	59
Acceptable wastes	61	10	25	44	20	2	48	42	8	2	-	60
Unacceptable wastes	61	8	23	31	36	2	57	28	5	-	-	61
Dust control	61	3	18	49	25	5	15	42	32	8	2	59
Odor control	59	5	14	41	36	5	18	40	32	10	-	60
Litter control	60	7	17	55	20	2	16	48	29	7	-	58
Rodent control	61	5	21	46	28	-	31	37	31	2	-	59
Insect control	57	2	12	51	32	4	27	36	34	2	2	59
Animal control	59	3	14	51	29	3	24	37	34	5	-	59
Open burying	61	8	16	49	21	5	32	40	27	2	-	60
Hot loads	61	5	13	34	36	11	34	39	22	5	-	59
Scavenging	60	5	23	37	30	5	17	23	48	8	3	60
Salvaging	57	7	21	39	28	5	16	25	44	12	4	57
Inclimate weather	60	5	15	45	30	5	24	34	36	3	2	58
Site development	57	2	12	46	35	5	32	46	23	-	-	57
Site closure	59	8	15	39	32	5	43	45	7	5	-	60
Vegetation selection	60	3	8	33	43	12	30	47	22	-	2	60
Vegetation maintenance	59	3	8	36	39	14	26	45	28	-	2	58

**KNOWLEDGE:**

1. No training needed
2. More than adequate
3. Adequate
4. Less than adequate

**IMPORTANCE:**

1. Very important
2. Important
3. Moderately important
4. Not important



**NEEDS AND KNOWLEDGE ASSESSMENT**  
**Waste Disposal Facility Operators and Inspectors**

TASK	KNOWLEDGE LEVEL					IMPORTANCE					COMMENTS	
	1	2	3	4	5	1	2	3	4	5		
<b>Waste Decomposition</b>												
<b>1. Leachate</b>												
a. Generation	61	10	21	36	31	2	48	47	5	-	-	60
b. Migration	61	8	13	33	44	2	52	48				60
c. Control	61	5	10	38	44	3	58	39	2	2	-	57
d. Recognition	62	11	18	42	27	2	52	33	5	-	-	60
e. Problems	61	5	20	38	36	2	55	43	2	-	-	60
<b>2. Methane gas</b>												
a. Generation	58	7	14	28	47	5	28	59	9	3	2	58
b. Migration	59	2	12	14	64	8	34	52	9	3	2	58
c. Control	58	-	12	10	71	7	41	46	8	3	2	59
d. Recognition	58	2	12	21	59	7	36	51	8	3	2	59
e. Problems	57	-	14	16	61	9	33	55	7	3	-	58
<b>3. Settlement</b>												
a. Recognition	59	3	22	42	27	5	23	53	22	2	-	60
b. Problems	59	3	19	39	36	3	23	55	20	-	2	60
c. Control	58	5	14	41	31	9	30	46	22	-	2	63
<b>Equipment Use and Maintenance</b>												
1. Selection	62	5	5	35	37	18	31	36	22	7	5	59
2. Limitations	59	5	-	29	44	22	25	42	25	7	2	57
3. Cost analysis	60	3	-	27	40	30	21	28	33	11	7	57
4. Efficiency	61	2	2	30	44	23	25	28	32	9	7	57
5. Operation	59	-	3	31	41	23	19	29	34	5	7	58
6. Maintenance	58	-	5	26	38	31	18	32	30	9	12	57
7. Repair	58	-	2	24	33	41	14	34	27	13	13	56
8. Planning for emergencies	58	2	5	38	33	22	30	28	33	4	5	57
<b>Safety</b>												
1. First aid	61	3	15	46	30	7	29	31	34	7	-	59
2. Accident prevention	60	2	15	55	25	3	30	39	25	4	2	56
3. Recognition of unsafe practices and hazards	63	15	13	52	27	3	38	43	16	3	-	58
4. Public safety	60	5	15	53	22	5	40	38	19	3	-	58

**KNOWLEDGE:**

1. No training needed
2. More than adequate
3. Adequate
4. Less than adequate
5. No knowledge

**IMPORTANCE:**

1. Very important
2. Important
3. Moderately important
4. Not important
5. Not applicable

**NEEDS AND KNOWLEDGE ASSESSMENT**  
**Waste Disposal Facility Operators and Inspectors**

TASK	KNOWLEDGE LEVEL					IMPORTANCE					COMMENTS	
	1	2	3	4	5	1	2	3	4	5		
5. Fire safety	61	2	11	51	31	5	28	45	22	3	2	60
6. Operating safety	58	2	10	50	31	7	32	42	25	2	-	57
7. Spills	61	3	18	23	48	8	41	39	20	-	-	59
<b>Monitoring</b>												
<b>1. Leachate</b>												
a. Sample collection	63	10	13	35	38	5	42	51	7	-	-	59
b. Sample preservation	61	11	15	31	38	5	47	44	9	-	-	57
c. Importance	57	12	16	44	25	4	51	40	8	-	2	53
d. Well protection	58	12	12	40	33	3	51	40	9	-	-	55
e. Well maintenance	58	9	12	36	40	3	46	43	9	2	-	56
<b>2. Methane</b>												
a. Methods of detection	58	2	3	26	53	16	43	38	18	2	-	56
b. Instrument use	58	3	-	10	62	24	39	34	21	5	-	56
c. Instrument care	60	3	-	15	57	25	35	36	24	5	-	55
d. Dangers.	59	2	10	32	44	12	42	44	12	2	-	59
<b>Management</b>												
1. Motivation	58	3	12	55	26	3	26	29	38	3	3	58
2. Public relations	58	5	24	52	16	3	22	42	24	3	3	59
3. Public compliants	58	7	21	50	19	3	24	48	22	3	2	58
4. Employee relations	57	-	19	51	25	5	19	24	46	5	7	54
5. Accounting	57	-	11	40	39	11	14	21	48	7	10	58
<b>6. Records</b>												
a. Volume	55	2	9	45	38	5	19	28	48	2	3	58
b. Water	57	4	7	44	40	5	21	28	42	4	5	57
c. Accident/safety	58	2	10	41	41	5	19	39	34	5	4	56
7. Hours of operation	57	2	9	54	30	5	16	22	43	14	5	58
8. Communicate.	54	2	15	57	19	7	18	34	37	3	3	57
<b>Rules/Proceedures</b>												
1. Knowledge of rules	59	17	31	31	19	3	38	42	17	3	-	60
2. Understanding rules	59	17	31	25	24	3	42	48	10	-	-	60
3. Rational of standards	59	14	31	31	22	3	40	42	10	2	-	60
4. Understanding Permits	59	15	31	27	24	3	37	43	17	2	2	59
5. Permit ammendments	56	14	27	27	29	4	36	41	22	2	-	59
6. Co-disposal requests	57	12	23	19	42	4	39	35	23	2	2	57

**KNOWLEDGE:**

1. No training needed
2. More than adequate
3. Adequate
4. Less than adequate
5. No knowledge

**IMPORTANCE:**

1. Very important
2. Important
3. Moderately important
4. Not important
5. Not applicable

**KNOWLEDGE AND KNOWLEDGE ASSESSMENT**  
**Waste Disposal Facility Operators and Inspectors**

TASK	KNOWLEDGE LEVEL					IMPORTANCE					COMMENTS	
	1	2	3	4	5	1	2	3	4	5		
<b>Enforcement</b>												
1. Conduct inspections	62	19	24	37	19	-	52	36	11	-	-	61
2. Determine violations	63	19	21	30	29	2	57	24	9	-	-	58
3. Determine compliance	63	21	17	33	29	-	53	42	5	-	-	59
4. Collect evidence	62	15	15	40	31	-	46	42	10	2	-	59
5. Preserve evidence	59	15	15	30	37	2	50	34	14	2	-	58
6. Take pictures	61	26	18	31	23	2	42	41	15	2	-	59
7. Write reports	59	20	25	36	19	-	44	37	18	2	-	57
8. Testify	61	13	16	34	33	3	41	34	24	2	-	59
9. Present evidence	59	17	14	36	34	-	39	36	24	2	-	59
10. Limits of evidence	60	13	10	32	45	-	40	36	21	3	-	58
11. Procedures for enforcement	61	13	20	44	23	-	53	33	11	4	-	55
12. Limitations of rules	60	8	23	38	28	2	42	46	12	-	-	59
13. Communicate	60	8	25	50	17	-	44	37	17	-	-	59
14. Advisory role avoidance	57	9	12	44	35	-	39	37	21	4	-	57
15. Corrective actions to solve problems	60	8	18	45	28	-	55	34	11	-	-	56
16. Rights	60	12	8	50	30	-	41	40	19	-	-	58
17. Duties	60	12	12	52	25	-	48	33	19	-	-	58
18. Responsibilities	60	13	18	40	28	-	54	30	16	-	-	56
19. Types of inspections	61	13	18	36	33	-	40	38	21	2	-	58
20. Limits of inspections	60	13	17	33	37	-	34	39	20	2	-	59
21. Interpretation of rules	59	14	20	39	27	-	46	39	14	2	-	57
22. Records Management	60	10	13	38	35	3	29	37	34	-	-	59
23. Enforcement options	60	15	15	33	35	2	37	39	24	-	-	59
24. How to build a case	58	16	10	26	45	2	41	41	16	2	-	58
25. Educate	58	12	17	36	33	2	40	33	25	2	-	57
26. Complaint resolving	58	14	19	47	19	2	43	31	24	2	-	58
27. Public relations	59	10	24	46	20	-	45	36	17	2	-	58
28. Risk Assessment	59	10	8	37	41	3	24	45	17	3	-	58
29. Types of evidence	59	14	10	37	37	2	36	40	21	3	-	58
<b>Other Items Not Listed</b>												

**KNOWLEDGE:**

- 1. No training needed
- 2. More than adequate
- 3. Adequate
- 4. Less than adequate
- 5. No knowledge

**IMPORTANCE:**

- 1. Very important
- 2. Important
- 3. Moderately important
- 4. Not important
- 5. Not applicable



**NEEDS AND KNOWLEDGE ASSESSMENT  
Waste Disposal Facility Operators and Inspectors**

**SUMMARY**

TASK	KNOWLEDGE LEVEL					IMPORTANCE					COMMENTS	
	1	2	3	4	5	1	2	3	4	5		
<b>Plans &amp; Specifications</b>												
1. Read Plans	39	31	21	33	11	5	25	26	18	-	-	38
2. Interpret	39	23	26	38	11	3	14	36	19	-	-	36
3. Follow	36	31	31	31	8	-	35	41	22	3	-	37
4. Recognize limits of Plans	39	31	23	31	13	3	11	41	16	3	-	37
5. Determine slopes	37	35	27	30	8	-	26	36	25	3	-	36
6. Determine elevations	38	39	21	29	11	-	11	32	24	3	-	37
7. Equipment use	39	41	41	5	10	3	16	41	11	3	-	37
8. Math	37	38	24	32	5	-	29	23	43	6	-	35
9. Importance of following plans	36	36	25	33	6	-	16	32	22	-	-	37
<b>Site Design &amp; Construction</b>												
1. Potential volume	38	29	11	42	18	-	12	29	26	-	3	38
2. Clearing of land	38	42	24	29	3	3	29	18	32	16	5	38
3. Access	38	29	32	34	5	-	39	24	32	5	-	38
4. Building & Utilities	37	30	16	41	11	3	11	32	45	11	3	38
5. Fencing	38	26	32	37	5	-	18	32	32	16	3	38
6. Soils	38	11	26	37	21	5	39	47	11	3	-	38
7. Water	32	19	16	28	28	9	36	31	14	-	-	36
a. Surface	37	27	14	30	24	5	33	21	13	-	3	38
b. Ground	36	17	8	39	31	6	33	18	16	-	3	38
8. Land form Limitations	36	19	14	31	33	3	22	44	31	-	3	36
9. Trench Method	37	24	16	38	19	3	31	36	31	-	3	36
10. Area Method	37	27	30	22	19	3	31	36	31	-	3	36
11. Method of determining volumes received	36	31	22	31	17	-	17	51	29	-	3	35
12. Control of surface water	38	21	29	39	8	3	50	31	6	-	3	35
13. Control of Groundwater	38	8	16	32	29	16	21	35	11	-	3	37
14. Geology	35	9	6	17	54	14	22	30	30	5	3	37
15. Ideal site characteristics	35	14	14	49	20	3	35	49	14	-	3	37
<b>Site Operation</b>												
1. Traffic flow	34	18	50	26	3	3	31	20	34	6	9	35
2. Control Access	35	20	49	29	-	3	29	31	37	-	3	35
3. Handling of wastes	32	17	25	50	9	-	37	40	23	-	-	25
a. Mixed municipal refuse												

Numbers in far left and right columns reflect total response to each item.

Numbers in Other Columns are % response.

- |                       |                         |
|-----------------------|-------------------------|
| <b>KNOWLEDGE:</b>     | <b>IMPORTANCE:</b>      |
| 1. No training needed | 1. Very important       |
| 2. More than adequate | 2. Important            |
| 3. Adequate           | 3. Moderately important |
| 4. Less than adequate | 4. Not important        |
| 5. No knowledge       | 5. Not applicable       |

NEEDS AND KNOWLEDGE ASSESSMENT  
Waste Disposal Facility Operators and Inspectors

TASK	KNOWLEDGE LEVEL					IMPORTANCE					COMMENTS	
	1	2	3	4	5	1	2	3	4	5		
b. Bulky waste	39	21	23	41	10	5	32	30	35	3	-	37
c. Institutional waste	35	11	9	29	34	17	34	37	26	-	3	35
d. Dead animals	35	34	26	31	11	11	25	25	39	-	11	36
e. Hazardous wastes	37	5	8	19	33	30	26	6	-	2	6	36
f. Non compactable waste	34	12	21	44	21	3	33	31	22	8	3	36
g. Sludges	35	9	3	43	26	20	16	35	14	-	5	37
h. Liquids	35	9	9	29	34	20	39	24	11	-	5	37
i. Compactability	33	24	18	42	15	-	14	35	21	-	-	34
<b>Cover</b>												
a. Daily	36	33	39	28	-	-	33	33	28	3	3	36
b. Intermediate	37	35	30	35	-	-	27	41	27	5	-	37
c. Final	38	45	24	26	5	-	55	19	16	-	-	37
d. Maintenance	37	30	24	46	-	-	36	39	22	3	-	36
e. Drainage control	38	21	34	32	13	-	5	38	5	-	3	37
f. Erosion control	39	26	26	38	8	3	55	32	13	-	-	38
g. Soils	39	23	15	44	15	3	54	22	22	3	-	37
h. Compaction	36	25	31	36	8	-	40	41	14	-	-	37
i. Prevent waste of cover	37	35	16	38	11	-	42	44	14	-	-	36
k. Confinement	37	27	16	41	14	3	30	33	31	-	-	36
. Acceptable wastes	36	19	19	39	19	3	69	25	6	-	-	36
. Unacceptable wastes	36	6	17	42	33	3	65	32	3	-	-	37
. Dust control	36	25	25	39	11	-	14	25	50	8	3	36
. Odor control	37	14	11	57	16	3	10	21	61	3	-	38
. Litter control	36	22	19	56	3	-	22	33	36	8	-	36
. Rat control	36	22	14	50	14	-	4	26	31	-	-	35
. Insect control	36	17	14	47	19	3	27	30	32	8	3	37
. Animal control	35	23	14	49	14	-	20	29	35	6	3	34
. Open burying	35	29	26	40	3	3	35	32	22	5	5	37
. Hot loads	35	29	31	23	9	9	50	25	11	6	3	36
. Scavenging	35	29	43	29	-	-	19	22	44	11	3	36
. Salvaging	35	23	34	40	3	-	22	25	33	14	6	36
. Inclimate weather	35	14	37	34	11	3	31	33	25	6	6	36
. Site development	36	14	19	53	14	-	51	32	16	-	-	37
. Site closure	37	19	8	49	22	3	50	29	21	-	-	38
. Vegetation selection	36	11	11	44	33	-	20	39	32	3	-	38
. Vegetation maintenance	33	12	15	52	18	3	21	29	41	9	-	34

KNOWLEDGE:  
 1. No training needed  
 2. More than adequate  
 3. Adequate  
 4. Less than adequate  
 5. No knowledge

IMPORTANCE:  
 1. Very important  
 2. Important  
 3. Moderately important  
 4. Not important  
 5. Not applicable

NEEDS AND KNOWLEDGE ASSESSMENT  
Waste Disposal Facility Operators and Inspectors

TASK	KNOWLEDGE LEVEL					IMPORTANCE					COMMENTS	
	1	2	3	4	5	1	2	3	4	5		
<b>Waste Decomposition</b>												
1. Leachate												
a. Generation	36	6	8	44	33	8	49	40	11	-	-	35
b. Migration	34	-	9	44	38	9	47	39	8	-	-	36
c. Control	36	6	11	42	36	6	39	47	8	-	-	36
d. Recognition	34	12	12	35	32	9	49	46	6	-	-	35
e. Problems	37	3	14	38	30	16	50	36	14	-	-	36
<b>2. Methane gas</b>												
a. Generation	36	3	3	31	39	25	34	40	23	3	-	35
b. Migration	38	-	3	37	34	26	40	37	20	3	-	35
c. Control	37	-	3	32	38	27	36	42	19	3	-	36
d. Recognition	36	-	6	31	36	28	37	37	20	6	-	35
e. Problems	35	-	3	37	34	26	38	38	21	3	-	34
<b>3. Settlement</b>												
a. Recognition	35	11	14	57	14	3	19	36	39	6	-	36
b. Problems	37	11	16	54	19	-	19	38	38	5	-	37
c. Control	36	14	14	56	17	-	22	38	35	5	-	37
<b>Equipment Use and Maintenance</b>												
1. Selection	37	27	22	43	8	-	42	32	24	-	3	38
2. Limitations	37	22	22	49	8	-	24	39	24	-	3	38
3. Cost analysis	37	24	19	41	14	3	47	39	11	-	3	36
4. Efficiency	36	25	25	33	17	-	44	42	11	3	-	36
5. Operation	36	31	31	25	14	-	41	38	14	8	-	37
6. Maintenance	36	31	25	31	14	-	42	42	14	3	-	36
7. Repair	36	28	25	28	19	-	35	35	22	3	5	37
8. Planning for emergencies	36	22	28	42	8	-	44	42	11	-	3	36
<b>Safety</b>												
1. First aid	36	17	19	53	11	-	45	39	16	-	-	38
2. Accident prevention	37	19	27	49	5	-	47	45	8	-	-	38
3. Recognition of unsafe practices and hazards	37	22	27	43	8	-	54	38	8	-	-	39
4. Public safety	37	24	30	38	8	-	59	35	5	-	-	37

KNOWLEDGE:  
 1. No training needed  
 2. More than adequate  
 3. Adequate  
 4. Less than adequate  
 5. No knowledge

IMPORTANCE:  
 1. Very important  
 2. Important  
 3. Moderately important  
 4. Not important  
 5. Not applicable



**NEEDS AND KNOWLEDGE ASSESSMENT  
Waste Disposal Facility Operators and Inspectors**

TASK		KNOWLEDGE LEVEL					IMPORTANCE					COMMENTS
		1	2	3	4	5	1	2	3	4	5	
. Fire safety	35	17	31	49	3	-	43	46	9	3	-	35
. Operating safety	36	17	36	44	3	-	51	41	5	-	-	37
. Spills	35	14	17	46	14	9	56	28	14	3	-	36
<b>Monitoring</b>												
. Leachate												
a. Sample collection	36	14	17	17	44	8	42	42	17	-	-	36
b. Sample preservation	37	14	14	19	41	14	42	39	19	-	-	36
c. Importance	35	17	17	26	31	9	51	30	16	3	-	37
d. Well protection	37	16	14	30	38	3	45	37	18	-	-	38
e. Well maintenance	37	11	11	35	35	8	41	41	19	-	-	37
<b>Methane</b>												
a. Methods of detection	36	-	6	22	50	22	38	46	11	3	3	37
b. Instrument use	35	-	3	17	51	29	26	44	17	-	3	36
c. Instrument care	36	-	6	17	47	31	37	43	20	-	-	35
d. Dangers.	35	-	9	23	49	20	47	39	14	-	-	36
<b>Management</b>												
. Motivation	35	9	43	46	3	-	25	47	22	3	3	36
. Public relations	36	14	39	44	3	-	41	35	16	5	3	37
. Public compliants	36	8	42	44	6	-	35	41	16	5	3	37
. Employee relations	35	11	31	54	3	-	36	44	11	6	3	36
. Accounting	35	3	29	57	11	-	25	42	28	3	3	36
. Records												
a. Volume	35	3	29	57	11	-	25	36	36	3	-	36
b. Water	36	3	22	64	8	3	24	32	41	3	-	37
c. Accident/safety	34	3	32	59	6	-	28	31	33	8	-	36
. Hours of operation	35	17	31	49	3	-	26	29	32	9	3	34
. Communicate.	33	15	39	42	3	-	33	33	27	3	3	33
<b>Rules/Procedures</b>												
. Knowledge of rules	36	19	25	44	11	-	38	46	14	3	-	37
. Understanding rules	37	14	27	46	14	-	41	49	11	-	-	37
. Rational of standards	37	8	24	51	16	-	20	50	21	3	-	38
. Understanding Permits	39	15	26	41	18	-	30	43	19	8	-	37
. Permit amendments	36	17	22	36	22	3	23	54	14	6	3	35
b. Co-disposal requests	31	6	26	26	35	6	23	53	13	7	3	30

**KNOWLEDGE:**

1. No training needed
2. More than adequate
3. Adequate
4. Less than adequate
5. No knowledge

**IMPORTANCE:**

1. Very important
2. Important
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4. Not important
5. Not applicable

NEEDS AND KNOWLEDGE ASSESSMENT  
Waste Disposal Facility Operators and Inspectors

TASK	KNOWLEDGE LEVEL					IMPORTANCE					COMMENTS	
	1	2	3	4	5	1	2	3	4	5		
<b>Enforcement</b>												
1. Conduct inspections	34	9	21	47	15	9	20	46	23	3	9	35
2. Determine violations	35	6	23	51	9	11	26	43	23	-	9	35
3. Determine compliance	35	6	29	43	11	11	24	47	21	-	9	34
4. Collect evidence	34	3	21	50	15	12	23	37	23	6	11	35
5. Preserve evidence	35	3	17	51	17	11	22	36	25	6	11	36
6. Take pictures	34	12	18	47	9	15	17	31	31	9	11	35
7. Write reports	34	9	15	53	15	12	26	26	31	6	11	35
8. Testify	33	6	9	52	21	12	14	34	26	14	11	35
9. Present evidence	35	6	9	54	17	14	17	34	29	9	11	35
10. Limits of evidence	36	3	6	53	22	17	14	34	34	9	9	35
11. Procedures for enforcement	33	-	15	33	36	15	22	28	31	6	13	32
12. Limitations of rules	35	-	14	43	29	14	15	41	29	6	9	34
13. Communicate	35	3	26	51	9	11	26	41	21	3	9	34
14. Advisory role avoidance	33	-	9	52	24	15	15	35	38	-	12	34
15. Corrective actions to solve problems	34	3	18	56	12	12	23	52	16	-	10	31
16. Rights	32	3	22	38	22	17	26	46	17	3	9	35
17. Duties	33	6	24	42	15	12	23	40	23	3	11	35
18. Responsibilities	33	9	24	42	12	12	24	47	21	-	9	34
19. Types of inspections	33	-	18	45	24	12	18	50	21	-	12	34
20. Limits of inspections	32	-	25	38	25	13	18	42	21	6	12	33
21. Interpretation of rules	31	10	19	42	16	13	27	45	18	-	9	33
22. Records Management	34	6	12	47	24	12	24	32	32	3	9	34
23. Enforcement options	32	-	16	44	22	19	24	30	30	3	12	33
24. How to build a case	33	-	6	30	39	24	21	24	29	9	18	34
25. Educate	34	-	6	56	21	18	23	31	26	6	14	35
26. Complaint resolving	33	-	15	48	21	15	21	41	26	-	12	34
27. Public relations	33	-	21	52	15	12	35	35	18	-	12	34
28. Risk Assessment	33	-	3	48	24	24	21	26	32	9	12	34
29. Types of evidence	32	3	3	47	25	22	15	26	29	15	15	34

Other Items Not Listed

- KNOWLEDGE:**
1. No training needed
  2. More than adequate
  3. Adequate
  4. Less than adequate
  5. No knowledge
- IMPORTANCE:**
1. Very important
  2. Important
  3. Moderately important
  4. Not important
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